

College of Liberal Arts and Sciences
Spring 2021 Chemistry Seminar Series
Friday, May 14th

Dr. Swetha Murthy
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Vollum Institute, Oregon Health & Science University

How do cells sense force and why is it important?

Abstract:

Dr. Murthy's research focus is to understand mechanotransduction—the conversion of mechanical force into biological signals—and its role in physiological and pathological states in humans. For this, her lab studies mechanosensitive ion channels from the perspective of their *in vivo* function as well as their molecular features that enable force-detection and channel gating. In her seminar Dr. Murthy will discuss the role of the mechanosensitive channel PIEZO2 in mechanical allodynia, which is when gentle touch evokes pain. This phenomenon is one of the leading clinical symptoms of neuropathy-induced pain in humans. Her research suggests that PIEZO2 is the mechanosensor that mediates allodynia, and raises the possibility that PIEZO2 could be a viable clinical target to treat neuropathic pain. Dr. Murthy will also discuss some of the current efforts in her lab to delineate functional properties and underlying gating mechanisms of a recently discovered large mechanosensitive ion channel family, OSCA/TMEM63.

Bio:

Swetha Murthy earned her B.S. from Bangalore University in India. She received her Ph.D. in Biochemistry from the State University of New York, Buffalo in 2012. Under the guidance of Gabriela Popescu she studied gating mechanism of NMDA receptors for her doctoral research. She trained as a postdoctoral fellow with Ardem Patapoutian at Scripps Research where she studied the functional and physiological characterization of mechanically activated ion channels. Murthy joined the Vollum Institute as assistant scientist in 2019.